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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,883	08/21/2003	Dae-Sik Kim	1293.1957	6836
21171	7590	06/22/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			SEVER, ANDREW T	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/644,883

Applicant(s)

KIM ET AL.

PM

Examiner

Andrew T. Sever

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's argument's with regards to rejection of the last office action were persuasive, however new art has been found and, therefore, the finality of that action is withdrawn.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 6, 12-20, 22-30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama et al. (US 6,508,554) in view of Lambert (US 6,288,815.)

Hatakeyama teaches in figure 1 a projection system comprising:

Light emitting units (207-209) emitting light beams of different wavelengths (R, G, and B);

Art Unit: 2851

A scrolling unit (213) which separates the light beams into color beams and scrolls the color beams when the scrolling unit is rotated (see column 4 line 58 through 14); and  
A light valve (204) that receives the color beams transmitted by the scrolling unit and forms a color image by turning pixels on or off according to an input image signal (this is how light valves work.)

Hatakeyama does not teach that the scrolling unit further comprises spirally arranged cylinder lens cells. Lambert teaches in figure 7B a cylindrical lens structure which is spirally disposed (see column 11 lines 12-14). Although Lambert teaches only a single spiral lens in figure 7B in an alternative taught in lines 22-26 (not shown), Lambert teaches a plurality of lens arrays (spiral lens cells) arranged on a single shaft. Lambert teaches in column 5 line 51 through column 6 line 29 that by providing a scrolling unit (scanning element) that has optical power (such as the spiral lens embodiment of figure 7B described above in the plurality) optical errors caused by the scanning function and by other parts of the projection device can be corrected producing a better scanned image (and those of ordinary skill in the art would recognize potentially a higher resolution.) Lambert also teaches in column 8 lines 1-40 by using a rotating scrolling unit instead of the kind taught by Hatakeyama, discontinuities could be eliminated. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a scrolling unit having spirally arranged cylinder lens cells to separate the light beams as taught by Lambert in the projection system of Hatakeyama.

Art Unit: 2851

*With regards to applicant's claim 6:*

Hatakeyama teaches collimating lens (202).

*With regards to applicant's claims 12-14:*

Lambert as described above teaches 2 cylinder lens cells and in light of other embodiments such as figure 7C it would be obvious for it to include 3 or more cells since the other embodiments teach more than 2 cells.

*With regards to applicant's claims 15-18:*

As described by Lambert, the scrolling unit rotates at a constant speed in a direction and one of ordinary skill in the art would recognize that there is a direct relationship between that speed and the number of units (Lambert describes one such situation in column 11 lines 13-29.)

*With regards to applicant's claim 19:*

The scrolling unit is a single optical element.

*With regards to applicant's claim 20:*

Hatakeyama teaches the three colors are red, green, and blue.

*With regards to applicant's claims 22-25:*

See above, wherein the method of projecting an image using the projection system of Hatakeyama in view of Lambert is obvious. With regards to claims 23-25, Hatakeyama teaches lens and mirrors between the scrolling unit and the light valve, which are present to control width.

*With regards to applicant's claim 26:*

The method of Lambert described with regards to the projection system above is an equivalent alternative to linearly traveling optical element scrolling system (see figure 5 of Lambert for example) in the way it scrolls the light (although as described above it includes discontinuities) and accordingly the system described above by Lambert would be equivalent.

*With regards to applicant's claims 27-29:*

See above.

*With regards to applicant's claim 30:*

See figure 6 parts 255 and 254 of Hatakeyama.

*With regards to applicant's claim 34:*

See above.

Art Unit: 2851

5. Claims 2-5, 7-11, 21, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama in view of Lambert as applied to claims 1, 6, 12-20, 22-30, and 34 above, and further in view of Kruschwitz et al. (US 6,594,090.)

As described above Hatakeyama in view of Lambert teaches a projection system and method of using said projection system which comprises among other things a scrolling unit having spirally arranged cylinder lens cells as well as a light valve. Hatakeyama in view of Lambert does not teach first and second fly-eye lenses, which receive the color beams transmitted by the scrolling unit, diverge the color beams, and transmit the color beams to the light valve. Kruschwitz teaches in figure 2 fly-eye lenses 42a and 42b. Kruschwitz teaches that the fly-eye lenses are provided after a scrolling unit for purposes to provide efficient, uniform illumination over the area of the light valve (see column 4 line 65 through column 5 line 15. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kruschwitz's fly-eye lenses in the projection system and corresponding method of Hatakeyama in view of Lambert.

*With regards to applicant's claims 3 and 9:*

Kruschwitz in the column 5 teaches relay lenses that are present but not labeled in Kruschwitz's drawings. Kruschwitz teaches that these are necessary as the overlap the light exiting the fly-eye lenses and give the light beams a rectangular are for illuminating the liquid crystal light valve, since light valves are generally rectangular in shape (including their pixels) it would have been obvious to one of ordinary skill in the art at

Art Unit: 2851

the time the invention was made to use the relay lenses of Kruschwitz in the projection system and method of Hatakeyama in view of Lambert.

*With regards to applicant's claim 4:*

Hatakeyama in view of Lambert does not specifically teach that the light emitting units are any of the claimed light sources. Kruschwitz teaches the light emitting units are laser diodes (see column 4 lines 27-43). Kruschwitz teaches in column 1 lines 19-27 that Lasers are advantageous in projection systems over prior art light sources such as arc lamps, since lasers provide a wider color gamut featuring very saturated colors. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use lasers as taught by Kruschwitz in the projection system and method of Hatakeyama in view of Lambert.

*With regards to applicant's claims 5 and 8:*

See the above rejection of Hatakeyama in view of Lambert with regards to applicant's claim 30.

*With regards to applicant's claim 7:*

Kruschwitz in column 4 lines 27-43 teaches an alternative light source that includes a laser utilizing optical fibers.



*With regards to applicant's claims 10 and 11:*

See column 5 lines 1-40 of Kruschwitz.

*With regard to applicant's claim 21:*

See the with regards to applicant's claims 3 and 9.

*With regards to applicant's claims 31-33:*

See immediately above and the rejection based on Hatakeyama in view of Lambert.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-34 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argued that the rejection of Kruschwitz modified in view of Lambert would result in Kruschwitz not operating in the same manner. This was found persuasive since Kruschwitz's scrolling unit is specifically for the purpose of eliminating speckle, which Lambert's scrolling unit would not necessarily provide this function. Accordingly the Kruschwitz reference has been replaced with Hatakeyama which teaches a scanner for the same function as that of Lambert's and Kruschwitz has been made a secondary reference for teaching the use of first and second fly lenses after the scanner and the use of LED lasers and lasers in general as the light source. Since the change in grounds of rejection

Art Unit: 2851

is a new rejection not necessitated by applicant's amendment (applicant's amendment only changed formal matters), this action is made non-final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS



**JUDY NGUYEN**  
SUPERVISORY PATENT EXAMINER